



The 244-AR Vault cleanup team works with less cumbersome PPE, thanks to employee innovation.

Teamwork at 244-AR Vault reduces cost, time and risk

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The 244-AR Vault cleanup team recently solved seemingly insurmountable problems and is expected to save more than a million dollars using the Project Delivery System, the chartering method also called PDS that was developed by CH2M HILL.

Chartering “ensures that team members share the same vision for the project, which greatly increases the probability that the team will experience both success and high-quality performance,” according to the PDS textbook.

“The employees design the work, then they *do* the work within the safety parameters,” said Pete Pallis, cognizant radiological control supervisor. “Our team made 10 to 15 entries into the 244-AR facility without a contamination incident. The spirit of cooperation between Operations and RadCon is causing this effort to be successful.”

The 244-A Vault was constructed between 1966 and 1968 as a lag storage and treatment facility for PUREX waste. Before cleanup began, the vault was a radiological and chemical nightmare. The canyon area had become a dumping ground for industrial cleaners and abandoned equipment. Contamination levels were far higher than the standard field instruments could measure. And about 19,000 gallons of waste remain in three cells and four tanks located below the canyon floor.

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Better solutions

Cleanup and closure plans for 244-AR called for a \$500,000 ventilation system which would provide some radiological control, but not enough. Those working in the facility still had to wear three pairs of anti-contamination clothing and breathe filtered air from powered blowers they carried. Due to lengthy suit-up time and the threat of heat stress, only about two hours of work could be performed each day. So the 244-AR team came up with some better ideas, including the use of containment tents, polyurea coating, plasma arc cutting and mockup testing.

First, a three-chambered containment tent was installed outside the vault so the crew could enter and exit the facility without spreading contamination. The discarded items in the canyon were disposed of appropriately. "Innovative thinking and good conduct of operations by the craftsmen made this possible," said Al Erhart, 244-AR project manager.

The next step was to apply polyurea to the canyon floor and 8 feet up the walls for preliminary radiological control. This sprayable coating, not unlike that used for permanent truck bed liners, virtually eliminated loose contamination in the facility by trapping it within the coating. Workers now wear far less personal protective equipment and can work almost twice as many hours per day.

Other innovations

Through PDS chartering, the 244-AR team designed a second containment tent that is expected to save \$1 million in installation and hardware costs. The tent, which consists of several rooms connected by a long hallway, will be set up in the facility's canyon. Inside, holes will be cut in the five-foot-thick concrete floor so that pumps can be installed in the waste tanks below. The liquid waste remaining in these tanks will be transferred to a double-shell tank for safer storage.

It was planned that an abrasive water jet would cut through the waste tanks, but employee input through team chartering led to the solution of using a plasma arc cutting tool instead, to essentially "unweld" the metal. This choice will save the project \$300,000 because it's a faster method and will not generate additional liquid waste requiring disposal.

Pipefitters and operations personnel will do mockup testing of plasma arc cutting before performing the work in the 244-AR Vault. Operators will also practice setting up the containment tent. Mockup testing saves time and increases the comfort level by allowing the team to troubleshoot the job and become familiar with the equipment and usage.

The interim stabilization of the 244-AR Vault is a Tri-Party Agreement milestone to be completed by Sept. 30, 2003.

"The project team is driving to beat this commitment date through innovations and teamwork," said Dale Allen, manager of the Double-Shell Tanks/Waste Feed Delivery Project. "This is a marvelous example of how using a disciplined project-delivery-centered approach with worker involvement in the planning process creates safe, cost-effective, early project completion." ♦